CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory
An ISO 9001:2008 Certified Company
NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Sp_Wa/2018-19

07.04.2018

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	Asst. Executive Engineer, Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	Technical Manager (West), KRIDL, Bangalore.
* Name of Work	:	Improvements of Asphalting at BHEL Mini Colony surrounding area in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/222/2017-18 Dated:07.02.2018
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	07.04.2018

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2017	2015	2018	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1263	
4	Weight of saturated surface dry aggregate in air	W_3 g	2020	2022	2025	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	781	784	762	
6	Weight of oven dried aggregate	W_4 g	2010	2012	2014	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.574	2.566	2.643	2.594
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.607	2.599	2.682	2.629
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.50%	0.55%	0.51%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Scanned by CamScanner

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/KRIDL/W.No.13/BC/Bitumen/2018-19 07.04.2018

TEST REPORT ON BITUMEN CONTENT OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements of Asphalting at BHEL Mini Colony surrounding area in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/222/2017-18 Dated:07.02.2018
* Sample ID	:	Road at BHEL Mini Colony, Mallasandra Ward No.13,
Technical Reference	:	IRC:SP:11-1984
Date of Testing	:	07.04.2018

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	470	469
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	30	31.00
7. Bitumen content in %	6.00	6.20
8. Average	**6.10**	

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross, 3rd Stage, 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

Scanned by CamScanner

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/KRIDL/W.No.13/BC/Bitumen/2018-19 07.04.2018

TEST REPORT ON BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements of Asphalting at BHEL Mini Colony surrounding area in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/222/2017-18 Dated:07.02.2018
* Sample ID	:	Road at BHEL Mini Colony, Mallasandra Ward No.13,
Technical Reference	:	IS 2386 and IRC:SP:11-1984
Date of Testing	:	07.04.2018

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	44.2	9.40	9.40	90.60	79-100
9.5	31.25	6.65	16.05	83.95	70-88
4.75	75.21	16.00	32.06	67.94	53-71
2.36	60.25	12.82	44.87	55.13	42-58
1.18	50.12	10.66	55.54	44.46	34-48
0.6	60.14	12.80	68.33	31.67	26-38
0.3	63.25	13.46	81.79	18.21	18-28
0.15	34.15	7.27	89.06	10.94	12-20
0.075	30.25	6.44	95.49	4.51	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	40.25	8.58	8.58	91.42	79-100
9.5	42.15	8.99	17.57	82.43	70-88
4.75	60.21	12.84	30.41	69.59	53-71
2.36	70.25	14.98	45.39	54.61	42-58
1.18	65.24	13.91	59.30	40.70	34-48
0.6	53.21	11.35	70.64	29.36	26-38
0.3	30.14	6.43	77.07	22.93	18-28
0.15	27.52	5.87	82.94	17.06	12-20
0.075	35.62	7.59	90.53	9.47	4-10

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Scanned by CamScanner

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Agg/2018-19 07.04.2018

TEST REPORT ON GRADATION OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements of Asphalting at BHEL Mini Colony surrounding area in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/222/2017-18 Dated:07.02.2018
* Sample ID	:	Bituminous Concrete
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Hot mix plant, Bangalore
Date of Testing	:	07.04.2018

Total Weight of Sample: **5100** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per `MORTH 500-18
13.2	765	15.00	15.00	85.00	79 - 100	
9.5	535	10.49	25.49	74.51	70 - 88	
4.75	635	12.45	37.94	62.06	53 - 71	
2.36	515	10.10	48.04	51.96	42 - 58	
1.18	510	10.00	58.04	41.96	34 - 48	
0.600	545	10.69	68.73	31.27	26 - 38	
0.300	580	11.37	80.10	19.90	18 - 28	
0.150	340	6.67	86.76	13.24	12 - 20	
0.075	315	6.18	92.94	7.06	4 - 10	

Total Weight of Sample: **5250** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-18
13.2	645	12.29	12.29	87.71	79 - 100	
9.5	550	10.48	22.76	77.24	70 - 88	
4.75	680	12.95	35.71	64.29	53 - 71	
2.36	545	10.38	46.10	53.90	42 - 58	
1.18	635	12.10	58.19	41.81	34 - 48	
0.600	480	9.14	67.33	32.67	26 - 38	
0.300	540	10.29	77.62	22.38	18 - 28	
0.150	385	7.33	84.95	15.05	12 - 20	
0.075	510	9.71	94.67	5.33	4 - 10	

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Scanned by CamScanner

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Stability/2018-19 07.04.2018

TEST REPORT ON MARSHALL STABILITY OF MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
*Name of the Work	:	Improvements of Asphalting at BHEL Mini Colony surrounding area in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
*Reference	:	BBMP/EE/DD/WO/222/2017-18 Dated:07.02.2018
* Source	:	Hot mix Plant, Bangalore
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	07.04.2018

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshall Stability (Kn at 60°C)	9.40	9.15	9 Kn (min)
2	Marshall flow (mm)	2.10	3.35	2 – 4
3	Voids in Compacted Mix %	3.60	5.25	3 – 6
4	Percent voids in Mineral Aggregate (VMA)	13.60	14.75	13 - 15
5	Percent Voids filled with Bitumen (VFB)	66.20	69.05	65 - 75
6	Density, g/cc	2.26	2.28	--

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಬಾಗ ⇒ ದಾಖಲಾತಿಯನ್ನು
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

Scanned by CamScanner